

541, 243

Rec'd PCT/PTO 01 JUL 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau(43) International Publication Date
22 July 2004 (22.07.2004)

PCT

(10) International Publication Number
WO 2004/062087 A1(51) International Patent Classification⁷: H03D 7/16,
H04B 1/04N2K 3W4 (CA). SNYDER, Christopher, Eugene
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4M2 (CA).(21) International Application Number:
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(22) International Filing Date: 6 January 2004 (06.01.2004)

(25) Filing Language: English

(26) Publication Language: English

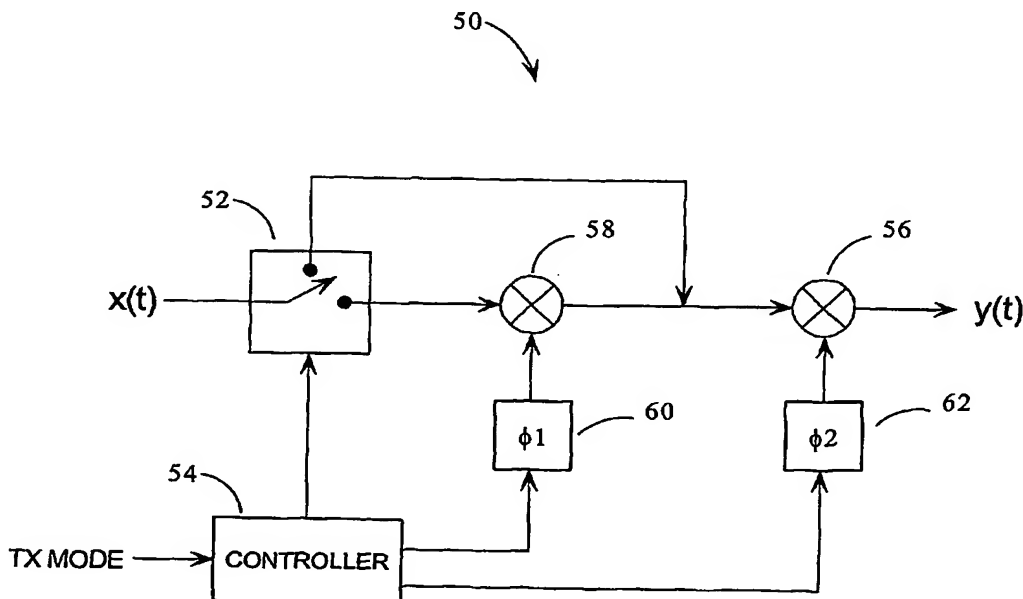
(30) Priority Data:
2,415,668 6 January 2003 (06.01.2003) CA
60/438,202 6 January 2003 (06.01.2003) US(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
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[CA/CA]; 185 Shadow Wood Court, Waterloo, Ontario(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,

[Continued on next page]

(54) Title: MULTI-MODE MODULATOR AND TRANSMITTER



(57) Abstract: The present invention relates generally to communications, and more specifically to a method and apparatus of modulating baseband and RF (radio frequency) signals. A modulator topology is disclosed in which an input signal $x(t)$ is up-converted to an output signal $y(t)$, either by mixing it with two mixing signals $\phi 1$ and $\phi 2$ ("pseudo-direct conversion" mode), or by mixing it with only one mixing signal $\phi 2$ ("direct-conversion" mode). In pseudo-direct modulation mode, the $\phi 1$ and $\phi 2$ mixing signals emulate a local oscillator signal; the product $\phi 1 * \phi 2$ has significant power at the frequency of a local oscillator signal being emulated, but neither $\phi 1$ nor $\phi 2$ have significant power at the frequency of the input signal $x(t)$, the LO signal being emulated, or the output signal $\phi 1 \phi 2 x(t)$.

WO 2004/062087 A1